

## Amendments to the Claims

Please amend claims as follows.

1. (currently amended) A method of automated path tracing from an original mesh switch through a switching mesh to a specified destination, the method comprising:
  - building a mesh traceroute packet to the specified destination;
  - transmitting the mesh traceroute packet via an exit port associated with the specified destination; and
  - receiving the mesh traceroute packet as returned,wherein the mesh traceroute packet as returned includes a plurality of hop entries providing a path trace from the original mesh switch through the switching mesh to the specified destination, each hop entry including a hop media access (MAC) address, a hop in-port, and a hop out-port.
2. (original) The method of claim 1, wherein the specified destination comprises a search MAC address and VLAN identifier.
3. (original) The method of claim 1, further comprising:
  - determining whether a trace complete flag in the returned packet is set;
  - and
  - outputting results from a completed mesh traceroute if the trace complete flag is set and if a trace found flag is set.
4. (original) The method of claim 3, further comprising:
  - generating an error message if the trace complete flag is clear or if failure is indicated by another flag.

5. (original) The method of claim 1, further comprising:
  - receiving the mesh traceroute packet at a hop mesh switch;
  - appending a hop entry to the mesh traceroute packet; and
  - forwarding the packet via a hop out-port to a next mesh switch.
6. (original) The method of claim 5, further comprising:
  - receiving the mesh traceroute packet at a destination mesh switch;
  - appending a final hop entry to the mesh traceroute packet;
  - marking a trace complete flag; and
  - sending the packet back towards the original mesh switch.
7. (original) The method of claim 6, wherein the packet is sent back towards the original mesh switch by way of a reverse trace path.
8. (canceled)
9. (currently amended) ~~The switching device of claim 8;~~ A switching device configured to be a member of a switching mesh, the switching device comprising:
  - a plurality of ports; and
  - a switch control device coupled to the plurality of ports,
  - wherein the switch control device is configured to perform an automated
    - method of tracing a path through the switching mesh to a specified
    - destination, wherein the automated method is accomplished by
    - building a mesh traceroute packet to the specified destination,
    - transmitting the mesh traceroute packet from an exit port
    - associated with the specified destination, and receiving the mesh
    - traceroute packet as returned via the same port, wherein the mesh
    - traceroute packet as returned includes a plurality of hop entries

providing a path trace from the original mesh switch through the switching mesh to the specified destination, each hop entry including a hop media access (MAC) address, a hop in-port, and a hop out-port.

10. (original) The switching device of claim 9, wherein the specified destination comprises a search MAC address and VLAN identifier.
11. (currently amended) A method of responding to receipt of a mesh traceroute packet during an automated path tracing, the method comprising:
  - receiving the mesh traceroute packet at a mesh switch; and
  - if the mesh switch is determined to comprise a hop mesh switch, then
    - appending a hop entry to the mesh traceroute packet, wherein the hop entry includes at least a hop media access (MAC) address, a hop in-port, and a hop out-port, and forwarding the packet via the hop out-port to a next mesh switch.
12. (canceled)
13. (currently amended) The method of claim 11, further comprising:
  - ~~determining that if the mesh switch comprises~~ is determined to comprise a
    - destination mesh switch[:], then filling in at least a hop in-port in the hop entry[:], marking a trace complete flag[:], and returning the packet towards the original mesh switch via the hop in-port.